Tellabs® 1600-612 Single Family Unit (SFU) ONT

Superior service delivery with a single cost-effective easy-to-install ONT

Overview

The Tellabs 1600-612 SFU Optical Network Terminal (ONT) supports residential voice, Ethernet-based data, Internet Protocol Television (IPTV), Multimedia over Coax Alliance (MoCA) and Cable Television (CATV) services all over a single optical fiber in one cost-effective, easy-to-install unit.

Features

- ITU-G.983 compliant
- Supports 622/155 Mbps asymmetrically in Passive Optical Networks (PONs)
- Utilizes the 1490 nm wavelength for downstream PON traffic from the Optical Line Terminal (OLT) and 1310 nm wavelength for upstream traffic to the OLT
- Environmentally hardened enclosure
- NEBS-3 compliant
- Install either indoors or outdoors
- Powered by a 12 V DC power adaptor and supports battery backup

Support

Voice Support

The Tellabs 612 ONT includes two Plain Old Telephone Service (POTS) ports for carrier-grade voice services. The POTS ports:

- Provide all Subscriber Line Interface Circuit (SLIC), codec, Dual Tone Multi-Frequency (DTMF) and dial-pulse detection/decoding functions needed for a complete analog telephone service
- Support Frequency Shift Keying (FSK) caller ID generation
- Provide Message Waiting Indicator (MWI) functions for visual and audible alerts
- Provide balanced five Ringer Equivalency Number (REN) ringing
- Support DTMF generation and decoding, tone generation and modem/fax tone detection
- Support GR-909/metallic loop test functionality

The POTS ports perform all battery, over voltage, ringing, supervision, CODEC, hybrid and test (BORSCHT) functions. The internal line-feed circuitry provides:

- Reverse battery operation
- Loop-start operation
- On-hook transmission

High-Speed Data Support

The Tellabs 612 ONT supports either one 10/100BaseT Ethernet or one MoCA interface for high-speed data communication in the home. Typical home configurations involve communication from the ONT to a home router via either CAT-5 Ethernet cable or in the case of MoCA, the existing in-home RG-6/RG-59 coaxial cable. Operator provisioning provides easy flexibility in determining which of the two interfaces is active. The Ethernet interface operates as an IEEE 802.1d transparent bridge based on RFC-2684. Class of service as well as bandwidth is controlled through provider provisionable options. The Ethernet and MoCA ports both support streaming IP video and IPTV content delivery and meet ITU 802.1p QoS standards at the Media Access Control (MAC) level.

CATV Support

The Tellabs 612 ONT provides a 54–870 MHz CATV Amplitude Modulated-Vestigial Side Band (AM-VSB) service over the 1550 nm optical wavelength on the PON in compliance with the G.983.3 standard. The CATV service can handle a variety of digital and analog channels and supports MoCA capability. The ONT functions as an addressable tap on the cable plant and can be enabled or disabled remotely to control CATV theft.

Figure 1. The Tellabs® 1600-612 SFU ONT

Management
The Tellabs 612 ONT supports management via the ITU G.983.2 OMCI interface to the OLT. When deployed with the Tellabs® 1000 Multi-Service Access Series OLT, the Tellabs 612 ONT can be managed by the Tellabs® 1090 Network Management System.

- ITU-T G.983.1 — Broadband optical access systems based on PON
- ITU-T G.983.2 — ONT management and control interface specifications for B-PON
- ITU-T G.983.3 — Broadband optical system with increased service capability by wavelength allocation
- ITU-T I.363.1 — B-ISDN Asynchronous Transfer Mode (ATM) Adaptation Layer specification: Type AAL1
- ITU-T I.363.5 — B-ISDN ATM Adaptation Layer specification: Type AAL5
- RFC 3261 — Session Initiation Protocol (SIP)
- RFC 3265 — SIP

Network Interfaces
- Downstream — 622 Mbps @ 1490 nm received optical power levels -8 to -28 dBm
- Upstream — 155 Mbps @ 1310 nm transmitted optical power levels 0 to +4 dBm
- Video — AM-VSB cable video distribution @ 1550 nm received optical power levels, +1 dBm to -5 dBm

Subscriber Interfaces
- Two RJ-11T and Insulation Displacement Connectors (IDC) ports for voice connections
- One RJ-45 port for Ethernet
- One type F coaxial connector for RF video including MoCA to deliver high-speed data and set-top return path over coax

POTS Voice Specifications
- Two POTS ports
- Performs all BORSCHT functions
- Up to five REN per line
- Supports loop lengths up to 500 ft
- Loop-start operation with modem/fax tone detection
- DTMF and dial pulse generation/decoding
- Dual tone generators
- A-Law*/μ-Law, linear Pulse Code Modulation (PCM) companding
- GR-909 loop diagnostics
- Draw and Break Dial Tone (DBDT)
- FSK caller ID generation
- Audible/visual MWI indicator support
- AAL1 Circuit Emulation Service (CES) and LAN Emulation Service (LES)
- SIP

Ethernet Specifications
- Multiple Permanent Virtual Circuit (PVC) support
- 10/100BaseT auto sensing support with Media Dependent Interface Crossover (MDIX)
- 100 m cable length
- Transparent bridging
- IPTV Switched Digital Video (SDV)
- Network Access Translation (NAT) routing with DHCP support*
- Layer 3*

Video Port Specifications
- 75 Ohm type F coaxial connector
- RF output level: 18 dBmV / channel supports up to eight RF devices
- 54–870 Mhz forward path

Power Specifications
- 12 V DC 2.0 A max input
- Standard battery alarm telemetry support

* Future release

Physical Specifications
- Tellabs 612 ONT electronics: 11 in x 11 in
- Optional outdoor enclosure: 13 in x 13 in x 3.5 in with integral 50 ft fiber slack storage
- Total combined weight: 6.25 lbs

Slack Storage Unit
- 50 ft storage
- ~1 in depth, 0 in added depth to enclosure.
- Included with enclosure
- 13x13 enclosure
- Low profile - ~3.5 in deep with SSU.
- Security screw
- Pad lock support
- Drop-in NID for easy installation and replacement

Environmental Specifications
- Temperature: -40° C to +46° C with solar loading

Certifications
- FCC Part 15 Subpart B, GR-1089, GR-63, GR-487

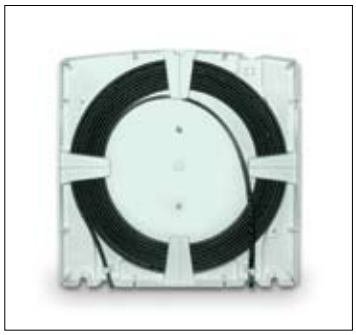

Figure 2. Features 50 ft. fiber slack storage

Figure 3. Optional outdoor enclosure

North America

Tellabs
One Tellabs Center
1415 West Diehl Road
Naperville, IL 60563
U.S.A.
+1 630 798 8800
Fax: +1 630 798 2000

Asia Pacific

Tellabs
3 Anson Road
#14–01 Springleaf Tower
Singapore 079909
Republic of Singapore
+65 6215 6411
Fax: +65 6215 6422

Europe, Middle East & Africa

Tellabs
Abbey Place
24–28 Easton Street
High Wycombe, Bucks
United Kingdom
HP11 1NT
+44 870 238 4700
Fax: +44 870 238 4851

Latin America & Caribbean

Tellabs
1401 N.W. 136th Avenue
Suite 202
Sunrise, FL 33323
U.S.A.
+1 954 839 2800
Fax: +1 954 839 2828

The following trademarks and service marks are owned by Tellabs Operations, Inc., or its affiliates in the United States and/or in other countries: TELLABS®, TELLABS and T symbol®, and T symbol®, and TELLABS® DYNAMICHOME™ Any other company or product names may be trademarks of their respective companies.

© 2006 Tellabs. All rights reserved.
74.1597E Rev. C 8/06